

WHAT IS CLAIMED IS:

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1. A resonance-frequency measuring method  
for measuring a resonance frequency of an  
information recording/reproducing device reproducing  
information recorded on a medium by driving a  
10 mechanism unit, the method comprising:

the measuring step of applying sine-wave  
oscillations at different frequencies one by one to  
said mechanism unit, and counting the number of  
times information reproduced upon application of  
15 each of said sine-wave oscillations differs from  
information indicating an aimed location; and

the resonance-frequency determining step  
of determining said resonance frequency according to  
said number of times counted in said measuring step.

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2. The resonance-frequency measuring  
method as claimed in claim 1, wherein said measuring  
step applies said sine-wave oscillations to said  
mechanism unit by adding sine-wave signals at  
different frequencies one by one to a control signal  
controlling an actuator to drive said mechanism unit.

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3. The resonance-frequency measuring  
method as claimed in claim 1, wherein said  
resonance-frequency determining step judges a  
frequency of the sine-wave oscillation maximizing

said number of times to be said resonance frequency.

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4. The resonance-frequency measuring method as claimed in claim 2, wherein said resonance-frequency determining step judges a frequency of the sine-wave signal maximizing said  
10 number of times to be said resonance frequency.

15 5. An information recording/reproducing device comprising:

a mechanism unit causing information recorded on a medium to be tracked;  
a driving unit driving said mechanism  
20 unit;  
a filter removing an unnecessary component from a control signal controlling said driving unit;  
measuring means for applying sine-wave oscillations at different frequencies one by one to  
25 said mechanism unit, and counting the number of times information reproduced upon application of each of said sine-wave oscillations differs from information indicating an aimed location;  
resonance-frequency determining means for  
30 determining said resonance frequency according to said number of times counted by said measuring means; and  
filter adjusting means for adjusting a characteristic of said filter so that said resonance  
35 frequency determined by said resonance-frequency determining means becomes a cutoff frequency of said filter.

6. The information recording/reproducing device as claimed in claim 5, wherein said measuring means applies said sine-wave oscillations to said mechanism unit by adding sine-wave signals at 5 different frequencies one by one to said control signal.

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7. The information recording/reproducing device as claimed in claim 5, wherein said resonance-frequency determining means judges a frequency of the sine-wave oscillation maximizing 15 said number of times to be said resonance frequency.

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8. The information recording/reproducing device as claimed in claim 6, wherein said resonance-frequency determining means judges a frequency of the sine-wave signal maximizing said number of times to be said resonance frequency.

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9. The information recording/reproducing device as claimed in claim 5, wherein said filter 30 comprises a plurality of notch filters combined so as to have a predetermined notch filter characteristic.

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10. The information recording/reproducing device as claimed in claim 9, wherein said filter comprises:

5 a first notch filter having a first cutoff frequency and exhibiting substantially symmetrical gain changes at frequencies below and above said first cutoff frequency;

10 a second notch filter having a second cutoff frequency lower than said first cutoff frequency, and exhibiting a smaller amount of gain changes and a smaller maximum gain at frequencies below said second cutoff frequency than an amount of gain changes and a maximum gain at frequencies above said second cutoff frequency; and

15 a third notch filter having a third cutoff frequency higher than said first cutoff frequency, and exhibiting a larger amount of gain changes and a larger maximum gain at frequencies below said third cutoff frequency than an amount of gain changes and  
20 a maximum gain at frequencies above said third cutoff frequency.

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11. The information recording/reproducing device as claimed in claim 10, wherein said filter further comprises a fourth notch filter having a fourth cutoff frequency lower than said second cutoff frequency, and exhibiting substantially symmetrical gain changes at frequencies below and above said fourth cutoff frequency.

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12. An electric filter comprising a

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plurality of notch filters combined so as to have a predetermined notch filter characteristic, the notch filters having different frequency characteristics.

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13. The electric filter as claimed in  
claim 12, wherein said notch filters include:

10 a first notch filter having a first cutoff frequency and exhibiting substantially symmetrical gain changes at frequencies below and above said first cutoff frequency;

15 a second notch filter having a second cutoff frequency lower than said first cutoff frequency, and exhibiting a smaller amount of gain changes and a smaller maximum gain at frequencies below said second cutoff frequency than an amount of gain changes and a maximum gain at frequencies above 20 said second cutoff frequency; and

25 a third notch filter having a third cutoff frequency higher than said first cutoff frequency, and exhibiting a larger amount of gain changes and a larger maximum gain at frequencies below said third cutoff frequency than an amount of gain changes and a maximum gain at frequencies above said third cutoff frequency.

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14. The electric filter as claimed in  
claim 13, wherein said notch filters further include  
a fourth notch filter having a fourth cutoff  
35 frequency lower than said second cutoff frequency,  
and exhibiting substantially symmetrical gain  
changes at frequencies below and above said fourth

cutoff frequency.